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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,779	08/06/2003	Paul R. Margiott	C-2952	1720
7590	05/17/2005		EXAMINER	
Malcolm J. Chisholm, Jr. P.O. Box 278 220 Main Street Lee, MA 01238			HODGE, ROBERT W	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/635,779	MARGIOTT ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Robert Hodge	1746

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 16 March 2005.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-5,7,9,13,14 and 16 is/are rejected.  
7)  Claim(s) 6-8,10-12 and 15 is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 3/16/05 have been fully considered but they are not persuasive. The amended claim 1 is still anticipated by the Balliet et al. reference because the added limitation of the "hydrogen reservoir means secured between the hydrogen inlet valve and an anode exhaust valve secured to the anode flow path" reads on the pipe that feeds the anode compartment of the fuel cell as well as the anode compartment of the fuel cell. Both of which are "reservoir means" and will store a certain amount of hydrogen. Therefore all previous art rejections will be maintained. The examiner acknowledges applicants' extensive and thorough clarification of the intended invention and intended use of said invention. However intended use statements are given little to no patentable weight as long as the structure of the prior art can perform the same function as applicants' invention. And as clarified above the prior art can perform the same function at applicants' invention.
2. Applicant's arguments, see section II paragraph 3, filed 3/16/05, with respect to the rejection(s) of claim(s) 15 under 35 U.S.C. 112 second paragraph have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Balliet et al.
3. The examiner acknowledges that claims 17-27 have been canceled in this application.

4. The examiner further acknowledges that the applicants have amended the specification to overcome the previous objection and the objection is withdrawn.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-2, 7, 9, 13 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Balliet et al. U.S. pre-grant publication No. 2004/0126628 (now U.S. Patent No. 6,838,199), hereinafter referred to as Balliet et al.

The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

7. Balliet et al. teaches a fuel cell system (abstract) having an anode (paragraph [0018]) and cathode catalyst (paragraph [0020]), with an electrolyte disposed between them (paragraph [0017]), an anode and cathode flow path (paragraph [0021]), a

hydrogen inlet valve (paragraph [0023]), an oxidant inlet valve (paragraph [0022]), a hydrogen transfer means between the anode and cathode flow paths (paragraph [0024]) and a hydrogen reservoir means secured in fluid communication with the anode flow path (figure 1, paragraphs [0021]-[0022]). The examiner notes that as previously discussed that the anode flow field indicated by 28 in figure 1 reads on the claim language of said reservoir means as so recited, as well as the pipe feeding the anode flow field which does not have an indicator number but is present in figure 1 and both are in fluid communication with the anode flow path. Balliet et al. also teaches the use of a hydrogen transfer valve (paragraph [0024]), a proton exchange membrane (paragraph [0017]), an anode recycle line with an anode recycle blower (paragraph [0025]), and an auxiliary load connected to an external circuit (paragraph [0026]).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
9. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being obvious over Balliet et al. in view of Snow et al. U.S. Patent No. 6,589,312 hereinafter referred to as Snow et al.
10. Balliet et al. discloses all of the limitations in the above 102(e) rejection.
11. Balliet et al. does not disclose the use of a hydrogen storage media.

12. Snow et al. teaches hydrogen storage for use with fuel cells wherein a hydrogen storage hydride is used (column 3, lines 62-64).

13. It would have been obvious to include in Balliet et al. the use of a hydrogen storage media within the hydrogen vessel or reservoir in order to more safely store hydrogen and reduce the amount of space required for hydrogen storage versus compressed hydrogen.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being obvious over Balliet et al. in view of Condit et al. U.S. Patent No. 6,635,370 hereinafter referred to as Condit et al.

15. Balliet et al. discloses all of the limitations in the above 102(e) rejection.

16. Balliet et al. does not disclose the use of a hydrogen sensor means secured in communication with the fuel cell.

17. Condit et al. teaches a fuel cell system with a hydrogen sensor located within the anode flow field (column 8, lines 34-35)

18. It would have been obvious to include in Balliet et al. the use of a hydrogen sensor within the anode flow path in order to measure the concentration of hydrogen within said anode flow path.

***Allowable Subject Matter***

19. Claims 6, 8, 10-12, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
20. The prior art made of record does not disclose the use of a hydrogen storage media being secured within a porous anode substrate layer, nor does it disclose the use of a hydrogen transfer electrochemical pump as a hydrogen transfer means between the anode and cathode flow paths. The prior art made of record also does not disclose the use of a cathode bypass valve in conjunction with a cathode bypass blower both being a part of a cathode bypass line. The prior art made of record further does not disclose the use of anode and cathode exhaust valves that are located below the fuel cell system with respect to the direction of gravity, nor does it disclose that the valves can be vacuum release valves. The prior art made of record does not disclose that the hydrogen sensor means comprises of a sensor circuit, a power source, a voltage measuring device and a sensor circuit switch that is then secured to the fuel cell.

***Conclusion***

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**MICHAEL BARR**  
SUPERVISORY PATENT EXAMINER